POLYCHAETA, OLIGOCHAETA, ECHIUROIDEA, AND SIPUNCULOIDEA

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WITH FIFTEEN TEXT-FIGURES

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POLYCHAETA.

INTRODUCTION.

This report deals with benthic species only; the pelagic species collected by the Expedition will be described in a later publication. The specimens in this collection were obtained from various points on the Great Barrier Reef, the majority from Low Isles (lat. 16° 23′S.). Those collected in the course of the ecological survey of Low Isles and the neighbouring reefs have in the locality lists after the words "Gen. survey" and the date a place-name or a symbol referring to the key-chart given in Dr. Stephenson's report on the ecological survey. Dredged or trawled specimens have a station-number, and the

name of the boat in which they were obtained preceding their specifications of locality. A full account of the stations and the apparatus used is contained in Dr. C. M. Yonge's report on the conduct of the expedition.

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There are 46 species, of which 5 are new; one of the latter is the genotype of a new genus of Capitellids. *Pontogenia villosa*, Horst, is a curious form, very close to *Aphrodite*.

The heteronereid of *Perinereis obfuscata*, Grube, is new, and I have been able to add to the number of records of the aberrant heteronereid *Platynereis polyscalma*, Chamberlin, the atocous form of which is not known.

SYSTEMATIC ACCOUNT.

Family Amphinomidae.

Eurythoe complanata (Pallas).

Chamberlin, 1919, p. 28, for synonymy.

Occurrence.—Low Isles, Gen. survey; 6.xii.28, sand flat, "Under stones" (1).—28.iii.29, "Mangrove Park" (1).

4.iv.29, F. 6, "Dug up in sandbank near oyster-pen" (1).—11.iv.29, "Between anchorage reefs and Tripneustes Spit" (1).

Low Isles, "From rocks" (1); Low Isles (2); Batt Reef (3).

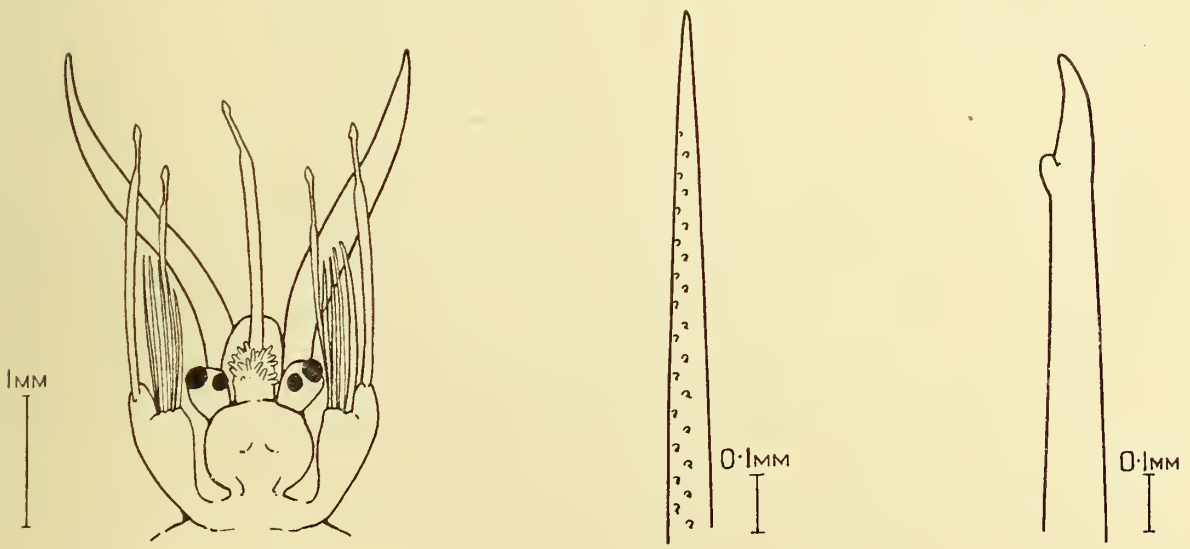
Family Aphroditidae.

Pontogenia villosa, Horst.

Horst, 1917, p. 139, figs. 1 and 2.

Occurrence.—Low Isles, "From rocks" (1).

Remarks.—The specimen measures 26 mm. by 10 mm. for 34 chaetigers. The thick dorsal felting gives it the appearance of an *Aphrodite*, from which it is distinguished



Text-fig. 1.—*Pontogenia villosa*. *a*, head; *b*, dorsal bristle; *c*, ventral bristle.

by the presence of eye-stalks and clearly bifid ventral bristles. The eye-stalks (Text-fig. 1*a*) are about half as long as the prostomium and each carries a pair of eyes at its tip; the dorsal member of each pair of eyes is rounded and the ventral oblong, and twice the size of the dorsal. The median tentaculophore is slightly longer than the eye-stalks and its tentacle is more than twice its length. The palps and the dorsal tentacular cirri are about the same length as the median tentacle; the ventral tentacular cirri are slightly shorter.

The dorsal cirri are completely concealed by the felting ; they are about the same length as the dorsal bristles and end in a clavate tip. The ventral cirri are very short, scarcely reaching to the bases of the ventral bristles.

The brown dorsal bristles (Text-fig. 1*b*) are directed fanwise upwards and backwards ; they are almost wholly hidden by the dorsal felting. They are very slightly curved, and on one edge are furnished with two rows of small alternating tubercles. The ventral bristles (Text-fig. 1*c*) are four in number and are more clearly bifid than those in Horst's type-specimen.

The dorsal felting consists of three kinds of bristles : (1) Very long slender yellow capillary bristles ; (2) colourless bristles, about half as stout as the preceding ; (3) minute microscopic hairs. I cannot see the articulated appearance attributed by Horst to the intermediate type of felting bristle.

I believe the only other record of this species is the original one from the Malay Archipelago.

Family Polynoidae.

Thormora johnstoni (Kinberg).

Monro, 1928B, p. 467.
Thormora jukesi, Baird, auctorum.

Occurrence.—Low Isles (1).

Remarks.—This specimen closely resembles those I described (*loc. cit.*) from Tahiti and the Marquesas.

Lepidonotus stephensoni, n. sp.

Occurrence.—Low Isles (1).

Description.—The example measures 30 mm. by 5 mm. without the feet for 25 chaetigers. The large flesh-coloured elytra with a dark spot over the scar of attachment give this specimen a very close resemblance to the *L. oculatus* of Baird. It has a typical *Lepidonotus* head, and the tentacles, palps, tentacular cirri and the ventral cirrus of the first chaetiger are all of about the same length—approximately three times as long as the head. The tentacles and cirri are claviform and have a small thread-like terminal appendage. The dorsal cirri extend beyond the tips of the bristles and the ventral just reach to the end of the foot.

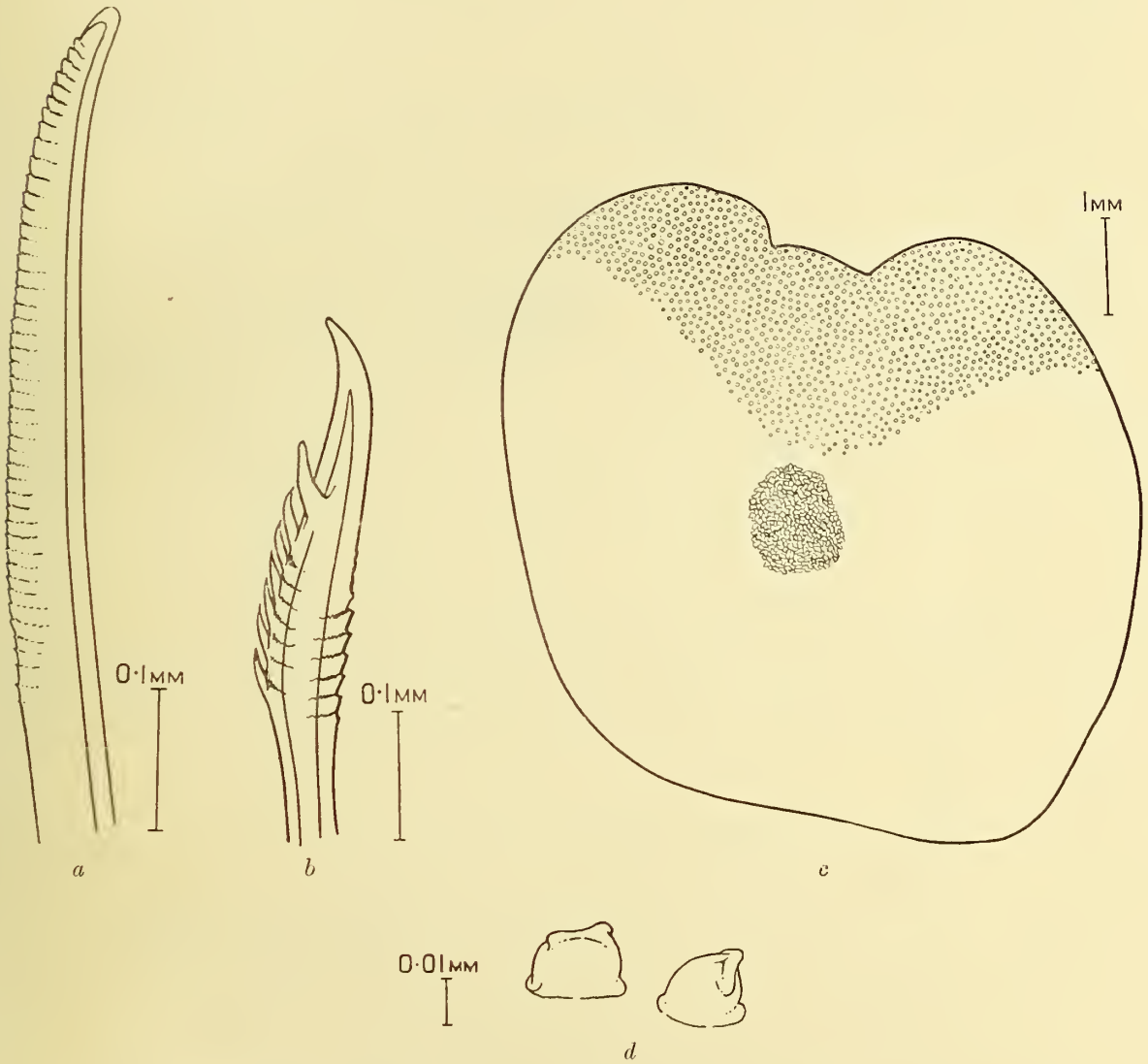
The structure of the bristles and feet is very similar to that of *L. oculatus*, of which Fauvel (1917, p. 171, pl. iv, figs. 20–23) gives a good account. The finely striated dorsal bristles (Text-fig. 2*a*) are fewer than in Baird's species, being only about four in number. They are very like the bristle of *L. oculatus* figured by Monro (1928A, p. 313). In the ventral bristles (Text-fig. 2*b*) the rows of spinules terminate distally in a large tooth ; but the apex is unidentate. So far this species is indistinguishable from *L. oculatus*.

It is, however, the structure of the elytra (Text-fig. 2*c*) that distinguishes this from Baird's species.

The characteristic mushroom-shaped tubercles of *L. oculatus* are absent.

The anterior border of the scale is slightly emarginate, and between it and the scar of attachment the scale is dotted with small semi-oval tubercles (Text-fig. 2*d*), similar to

those described and figured for *L. hedleyi* by Benham (1915, p. 181, pl. xxxviii, fig. 3) and by Pruvot (1930, p. 7, pl. i, fig. 9). The scales have no fringe and the pigment is confined to the scar of attachment, where, under the microscope, the granules have a reticular appearance.

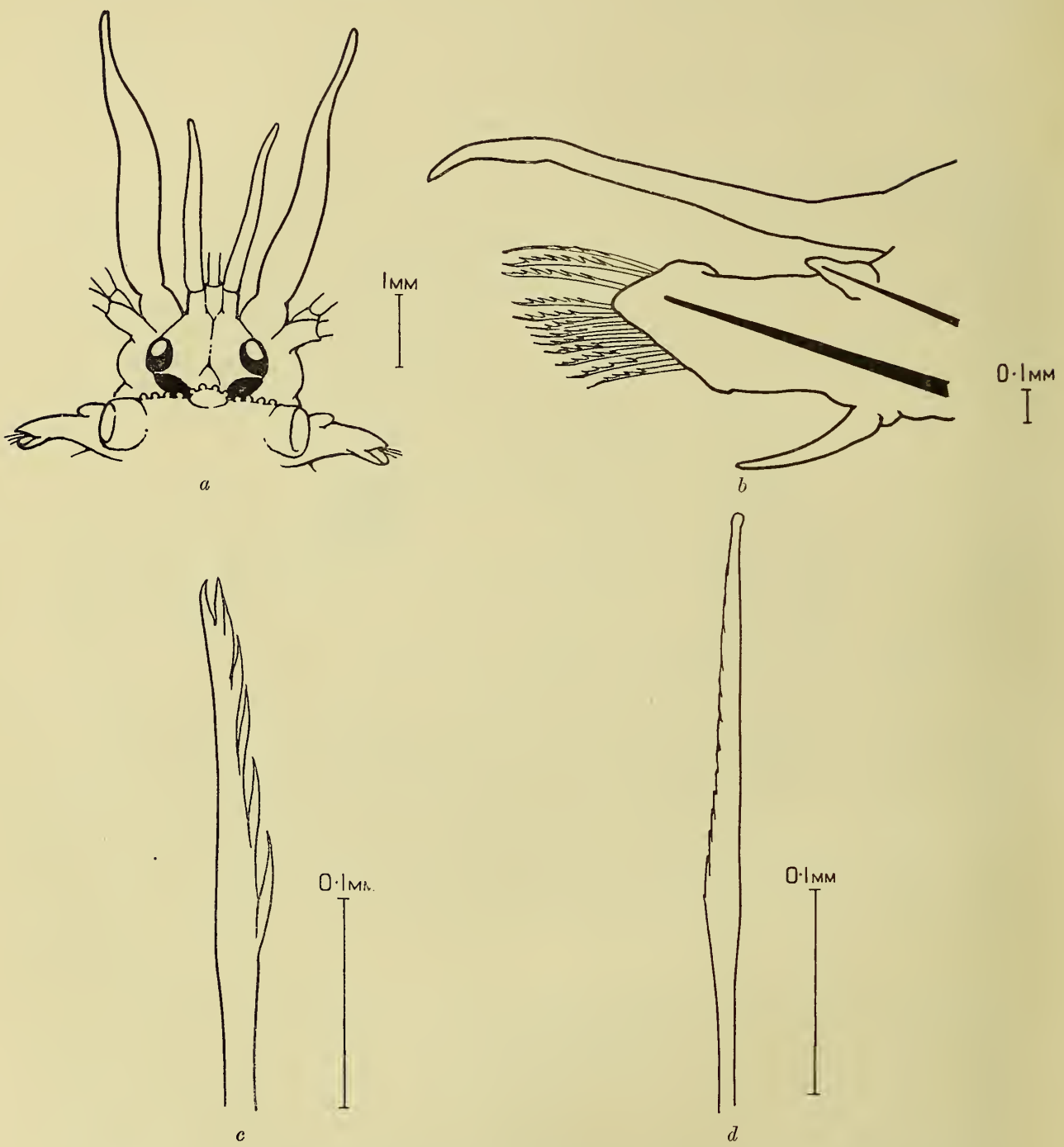


TEXT-FIG. 2.—*Lepidonotus stephensoni*. *a*, dorsal bristle; *b*, ventral bristle; *c*, scale; *d*, tubercles on the scale.

REMARKS.—This form combines in a curious manner the characters of *L. oculatus* and *L. hedleyi*, resembling the former in everything except the elytral tubercles, which are like those of *L. hedleyi*. In the present state of our knowledge of the relations of Baird's and Benham's species I have no choice but to establish a new species. It belongs to the group of Lepidonotids with unfringed elytra and unidentate ventral bristles. *L. argus*, *L. australiensis*, *L. impatiens* and *L. javanicus* belong to the same group of species, but differ in the nature of the bristles and the tuberculation of the elytra.

Lepidasthenia terrae-reginae, n. sp.

Occurrence.—Low Isles (2).



Text-fig. 3.—*Lepidasthenia terrae-reginae*. *a*, head ; *b*, anterior foot ; *c*, normal bristle from 17th foot ; *d*, dorsalmost bristle of 17th foot.

Description.—The body is long and vermiform, the larger specimen measuring 49 mm. by 2 mm. without the feet for 80 chaetigers. In spirit the colour is confined to two rows of brown spots, one on each side of the back above the feet ; there is also a small

brown spot on every elytron just median to the scar of attachment. Both specimens are incomplete posteriorly. The head is bilobed and broader than long (Text-fig. 3*a*). There are two pairs of round, contiguous, laterally situated eyes. The palps are stout tapering structures, which, when laid along the back, reach to the 6th chaetiger. The median terminally inserted tentacle is lost, as are also the tentacular cirri. Behind the head is a crescentic nuchal flap or gibbosity, the margin of which carries four papillae ; and on each side of the nuchal organ there is a row of four papillae reaching to the bases of the first pair of elytrophores.

The arrangement of the elytra is as usual in the genus ; they are quite smooth, transparent and unfringed ; they are rather larger than in most of the species of the genus.

The dorsal cirri reach well beyond the tips of the bristles ; the ventral cirri arise halfway down the feet and are about one third of their length. The feet (Text-fig. 3*b*) are very long, being, without the bristles, equal in length to the breadth of the back. They are clearly biramous, the notopodium being represented by a distinct lobe, supported by an aciculum ; there are no notopodial bristles. The neuropodium carries about twenty bidentate bristles of the usual *Lepidasthenia* kind, with about seven rows of teeth (Text-fig. 3*c*). Of these bristles the more dorsal are slightly longer and more slender than the ventral and have the separation of the two terminal teeth more clearly marked. In addition, for about the first twenty chaetigers there is a pair of longer and more delicate bristles situated dorsally to the rest ; these dorsal bristles (Text-fig. 3*d*) have an undivided tip and are very faintly toothed throughout the greater part of their length. They disappear by the 30th chaetiger.

Remarks.—The presence of a papillated nuchal flap distinguishes this species from all the other members of the genus except *L. michaelseni*, Augener, from south-west Australia. It differs from that species in having a much smaller nuchal organ, a more prominent notopodium and no unidentate dorsal bristles behind the 30th chaetiger.

Gastrolepidia clavigera, Schmarda.

Pruvot, 1930, p. 13, pl. i, figs. 16–19, with synonymy.

Occurrence.—Low Isles ; Gen. survey ; 10.iv.29, A4 (1).

Low Isles (1), Batt Reef (1), " Locality unknown " (2).

Iphione muricata (Savigny).

Fauvel, 1930, p. 509.

Occurrence.—Low Isles, Gen. survey ; 19.xi.18, sand flat, " Under stones " (1).—22.iii.29, RD and R16 (1).—28.iii.29, G.3 (1).—4.iv.29, F.9 (1).—5.iv.29, I.M.4 and I.M.5 (1), " Between Madrepore Moat and Mangrove Park " (5).—" The Thalamita Flat " (1).

St. 14. " Magneta." 7.iii.29, $\frac{1}{2}$ mile S.E. Lizard Island, 19 fms. Bottom shell gravel ; rich *Halimeda* (1).

St. 17. " Magneta." 9.iii.29, about $\frac{1}{4}$ mile N. of N. Direction Island, 19 fms. Bottom sand ; thick *Halimeda* (1).

Low Isles (6).

Family Sigalionidae.

Sthenelais variabilis, var. *glabra*, Potts.

Potts, 1910, p. 349, pl. xix, figs. 22–23, pl. xxi, fig. 63.
Sthenelais variabilis, Horst, 1917, p. 111, pl. xxii, fig. 6.

Occurrence.—St. 5, "Merinda," 24.xi.28, Linden Bank, 37 fms.; bottom mud; Agassiz trawl (3).

Remarks.—Three rather ill-preserved fragments, of which only one retains any scales. They correspond to Potts's account of the smooth variety of this species, except that the reduction of the tubercles on the elytra has gone a stage further, and all but the most anterior elytra are without tubercles; as in Potts's figure, the external border has a few large papillae. I can confirm Potts's observation that in several feet from the same specimen the simple upper neuropodial spinose bristles may be present, or they may be replaced by compound bristles with long, very slender jointed blades; in these the head of the shaft is usually denticulated. The most frequent condition is that both the simple spinose and the slender compound bristles are present in the upper part of the neuropodium.

There are three ctenidia. The number of stylodes appears to vary from one foot to another. In a number of feet I have seen a group of about 5 stylodes in the notopodium lying above the bristles, one or two in the middle of the neuropodium and two at the base of the feet.

Sthenelais malayana, Horst.

Horst, 1917, p. 114, pl. xxiii, figs. 7–9.

Occurrence.—West of Low Isles, 15.xi.28, 8 fms; bottom mud (1).

Remarks.—A single anterior fragment belonging to this species. The anterior end is infested with a small Polyzoan, probably the "? rotatoria" of Horst's account. The scales are thickly dotted with small semicircular tubercles and the external margin has a few long papillae; the number of papillae is considerably less than that in Horst's figure.

The slender compound neuropodial bristles lying just below the simple spinose neuropodial bristles have very long delicate terminal articles, and in these the bifid tips are often very difficult to see. In the more ventral upper neuropodial bristles the bifid tips are usually more clearly visible. The articulations of the appendix in the multi-articulate bristles are very much less distinct than in *S. variabilis*. Horst gives three as the number of ventral bristles with a single-jointed appendix; in this specimen there are at least six.

Family Polyodontidae.

Polyodontes melanonotus (Grube).

Panthalis melanonotus, Grube, 1878, p. 48, pl. iv, fig. 1.
Panthalis melanonotus, Fauvel, 1919, p. 339, pl. xv, figs. 1–3, pl. xvii, figs. 70–75, with synonymy.

Occurrence.—West side of Low Isles, 8 fms.; mixed bottom (1).

Remarks.—A single anterior fragment of 33 chaetigers. Fauvel has given a full account of this species. The scales have a narrow black border interrupted where the edge is reflexed to form a pouch.

The first foot is not extended, as in Fauvel's figure, but much contracted; it resembles that figured by Horst (1917, pl. xxviii, fig. 7) for his *Polyodontes sibogae*, which Fauvel

regards as identical with Grube's species. The feet are rugose and I cannot with certainty distinguish any branchial papillae. In the allied *P. mortenseni*, Monro, the elytra are not areolated as they are in the present species.

Family Phyllodocidae.

Phyllodoce malmgreni, Gravier.

Gravier, 1900, p. 207, pl. x, figs. 29–31, text-figs. 66–69.
Fauvel, 1919, p. 360.

Occurrence.—Low Isles, Gen. survey ; 20.iv.29, " The Sand Flat " (1).

Remarks.—A very long, slender, much-coiled specimen about 2 mm. in breadth. The dorsal median stripe is continuous for about the first 50 chaetigers, and then interrupted by segmental ridges joining the feet across the body : there are no intersegmental interruptions. I can see no nuchal papilla. The pharynx is not everted ; the oral region is covered with small papillae ; the aboral region has six longitudinal ridges, each divided into eight or nine large wart-like papillae. I have not dissected the third tentacular segment, but under a binocular I can see no chaetae.

The dorsal cirri in the middle feet are subrectangular.

This is the first record of this species from Australian waters. Gravier records it from the Red Sea, Fauvel from Madagascar, and Augener from New Pomerania.

Family Hesionidae.

Hesione intertexta, Grube.

Monro, 1926, p. 311.

Occurrence.—Low Isles ; 20.xi.28 (1).

Text-fig. 4.—*Hesione intertexta*. Bristle.

St. 14. "Magneta." 7.iii.29; ½ mile S.E. Lizard Island, 19 fms.; bottom shell gravel; rich *Halimeda* (2).

St. 17. "Magneta." 9.iii.29; about ¼ mile N. of N. Direction Island, 19 fms.; bottom sand; thick *Halimeda* (2).

Low Isles (4).

Remarks.—This species has brown stripey markings, and in the bristles the accessory tooth of the chaetal guard approaches the apical tooth (Text-fig. 4*a*).

Fauvel does not attach any differential importance to differences in colour in *Hesione*, and regards the relation of the chaetal guard to the apical teeth as being too subject to changes due to age and wear to be of any value as a specific character. He suggests that most of the species of *Hesione* described from the Indo-Pacific belong to the European *H. pantherina* Risso, which is probably the same as the imperfectly characterized *H. splendida* Savigny.

Having examined the present material, I see no reason to alter my opinion that when all allowances have been made for changes due to wear, etc., the relation of the chaetal guard to the apical teeth is of value as a specific differential. However, in the example attributed by me to *H. splendida* because of its lack of definite colour markings (*v.* Pruvot, 1930, p. 29), the absence of the chaetal guard would seem to substantiate Fauvel's view, if, as I have assumed, this absence is due to wear.

Between the examples of *H. intertexta* and *H. genetta* there is a definite difference in the length of the accessory tooth of the chaetal guard, associated with extreme differences in colour-pattern.

Hesione genetta Grube.

Horst, 1924, p. 193.

Occurrence.—Low Isles (3).

Text-fig. 5.—*Hesione genetta*. Bristle.

Remarks.—This species has the back covered with purple spots, and a transverse band of white between the 2nd and 3rd chaetigers. In the bristles the accessory tooth of the guard approaches the subapical tooth (Text-fig. 5*a*).

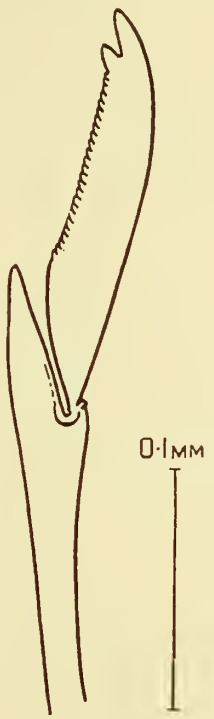
Hesione ? splendida, Savigny.

Pruvot, 1930, p. 27.

Occurrence.—Jukes Reef (1).

Description.—A single well-preserved specimen measuring 54 mm. by 5 mm. for 16 chaetigers is referred, with some doubt, to this species.

The specimen is flesh-coloured in spirit, and in each segment there is a square dorsal mark paler in colour than the rest of the body. On each side of the body just above the feet there is a series of thickened, probably glandular pads. Anteriorly the shape of the head is difficult to interpret owing to the distortion caused by the partial extrusion of the pharynx. It is roughly cordiform, and I can see no anterior indentation of the



Text-fig. 6.—*Hesione splendida.* Bristle.

prostomium. There is no trace of palps, and the usual pair of very small tentacles is present. There are two pairs of lateral eyes, of which the anterior is the larger. There are eight pairs of long tentacular cirri, the longest reaching back to the middle of the 2nd chaetiger.

Except for the one or two small bristles within the bases of the dorsal cirri the parapodia are uniramous. The dorsal cirri are very long and indistinctly annulated ; when laid across the back they reach beyond the mid-dorsal line. The ventral cirri are more distinctly annulated and reach to the tips of the bristles. The terminal segment is achaetous and its pedal lobes lying up against the anus send out two pairs of anal tentacular cirri. There is also a pair of long anal cirri in the median line.

The feet are cylindrical and supported by a single black aciculum ; they end in a pair of vertical lips from which there issue dorsally two finger-shaped retractile processes, and below these the neuropodial bristles.

These bristles are compound bidentate chaetae of the usual Hesionid kind except that after a prolonged and careful search I cannot find any trace of a chaetal guard on the blades (Text-fig. 6*a*).

It is impossible to decide whether the absence of the guard is due to wear, etc., or whether it is a natural feature. If it be natural, a new species should be established for this specimen ; the present material is, however, insufficient to warrant the assumption that there is a species of *Hesione* without chaetal guards. Except for the absence of the latter, the specimen agrees well with the example from New Caledonia attributed to Savigny's species by Pruvot.

Leocrates chinensis, Kinberg.

Horst, 1924, p. 193.

Leocrates anonymus, Hessle, 1925, p. 15, fig. 4.

Occurrence.—St. 17. "Magneta." 9.iii.29 ; about $\frac{1}{4}$ mile N. of N. Direction Island, 19 fms. Bottom sand. Thick *Halimeda*. Dredge (1).

Remarks.—This species is easily recognizable by its large facial tubercle.

Family Syllidae.

Odontosyllis hyalina, Grube.

Grube, 1878, p. 129, pl. vii, fig. 1.
Augener, 1913, p. 238.

Occurrence.—Low Isles ; 3.x.28. "Caught in lagoon after dark. Phosphorescent" (2).

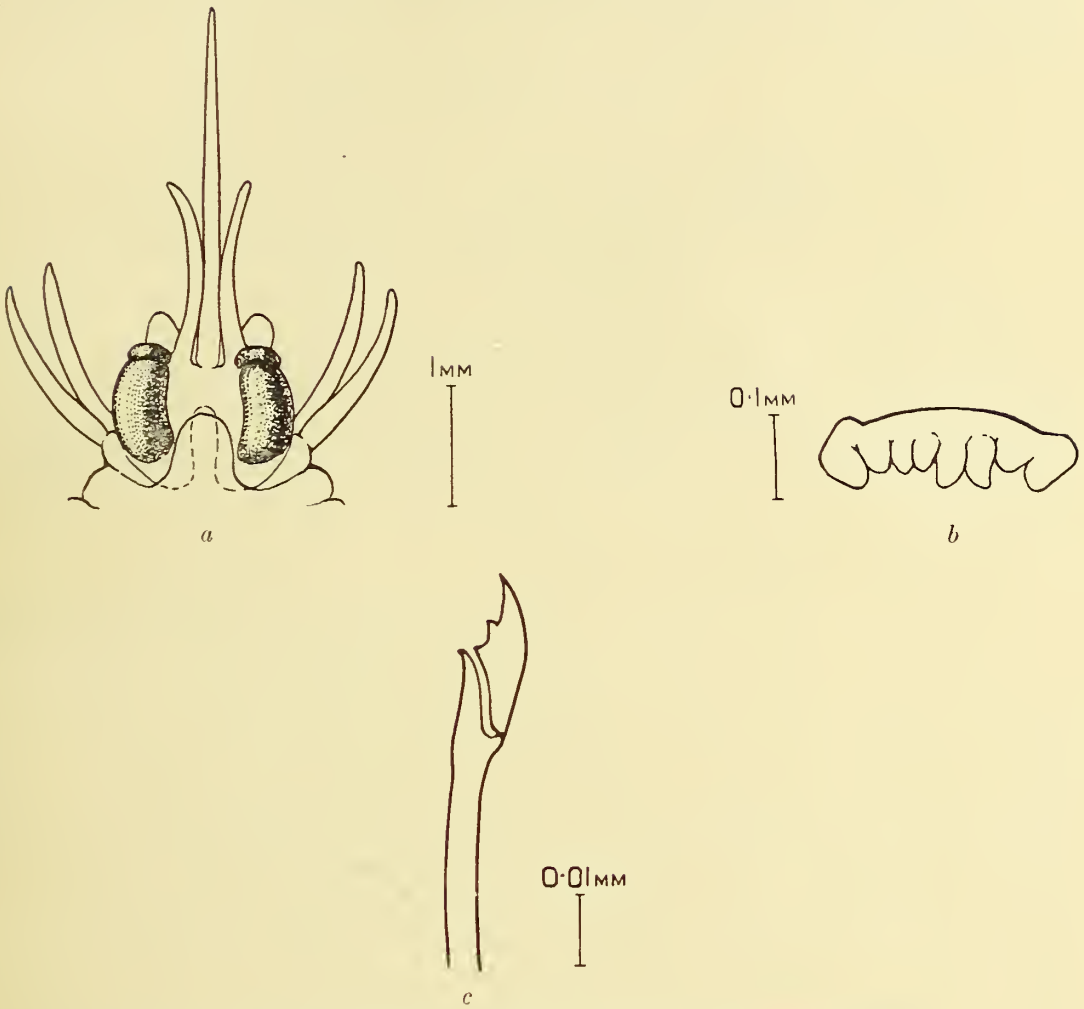
Remarks.—Two specimens broken into a number of fragments. The breadth is 2 mm. including the feet. They are colourless except for the eyes and in an epitocous condition. There is no trace of stolonization.

The head (Text-fig. 7*a*) is divided behind by a deep groove, to the front end of which the occipital gibbosity reaches. There are two pairs of enormous brown eyes, fused into a single mass. The anterior pair is directed forwards and the posterior upwards.

The palps are fused at their base and rather prominent. The lateral tentacles are slightly longer than the head, and the median tentacle is twice as long as the laterals. The dorsal cirri are slender cylindrical structures, alternately longer and shorter ; they reach well beyond the tips of the bristles. The ventral cirri are short conical organs reaching to the end of the pedal lobe.

The pharynx reaches to the 7th chaetiger and the proventriculus to the 17th. The pharynx is armed with eight teeth (Text-fig. 7*b*), two large lateral teeth and six smaller teeth between them. The bristles have very short bidentate blades, with the subapical tooth occurring about halfway down the blade (Text-fig. 7*c*). The swimming-bristles begin on the 34th chaetiger. I can see no trace of the pigmentation of the nephridia described by Grube. Augener has supplemented and modified Grube's original account of this species, but has added no figures.

Grube mentions the fact that it is phosphorescent.



TEXT-FIG. 7.—*Odontosyllis hyalina*. *a*, head ; *b*, teeth ; *c*, compound bristle.

Family NEREIDAE.

Nereis unifasciata, Willey.

Horst, 1924, p. 153, pl. xxxi, figs. 3 and 4, with synonymy.

OCCURRENCE.—Low Isles ; Gen. survey ; 28.iii.29. " Mangrove Park " (1).

REMARKS.—A single specimen doubtfully attributable to this species. It is incomplete, and measures 11 mm. by 2 mm. without the feet for 20 chaetigers, the last three of which are destroyed, so that, although the specimen is a ripe female, I cannot tell whether there is an epigamous change at the 19th chaetiger such as is recorded by Horst for his specimens. The specimen is colourless except for the three dark glandular marks on the ligules of the feet. The proboscis is not everted, but the arrangement of the paragnaths agrees with that given by Horst and other authors. I find that the ventral lobe of the foot extends about as far as the lower notopodial ligule and is longer than the ventral ligule. Willey

figures the ventral ligule longer than the ventral lobe and Horst describes them as of about the same length. The heterogomph spinigers of the lower ventral bundle are not fully heterogomph.

Perinereis nancaurica (Ehlers).

Nereis vancaurica, Ehlers, 1864–68, p. xx (Vorrede).
Grube, 1878, p. 83.
Nereis languida, Grube, 1867, p. 15, pl. ii, fig. 1, *a–b*.
Non *Nereis languida*, Kinberg, 1865, p. 169.
Nereis (*Perinereis*) *nancaurica*, Ehlers, Augener, 1922, p. 23.

Occurrence.—Low Isles ; 7.iii.29 (1).

Remarks.—The specimen measures 53 mm. by 3 mm. without the feet for 115 chaetigers. The species is distinguished by the presence of paired linear paragnaths in Group VI, and of very numerous, minute paragnaths on the maxillary ring. The maxillae have no secondary teeth. The proboscis is not everted, and I cannot give a detailed account of the number and arrangement of the paragnaths. The feet agree with Grube's figure. The arrangement of the bristles is as follows :

Notopodium : Homogomph spinigers.

Neuropodium : *Upper bundle :* Homogomph spinigers and heterogomph falcigers.
Lower bundle : Heterogomph spinigers and heterogomph falcigers.

There seems to be some confusion as to the origin and spelling of the specific name of this species. Grube (*loc. cit.*, 1878) refers it to p. 503 of Ehlers's ' Borstenwürmer ' : this is a mistake, as there is no mention of the name on that page. Actually the name is first used by Ehlers on p. xx of the *Vorrede* of his ' Borstenwürmer,' in which he points out that the name *languida* used by Grube for his species in 1867 is preoccupied by the *Nereis languida* of Kinberg 1865, Kinberg's species being distinct from that of Grube. Ehlers substitutes the name *vancaurica* for the *languida* of Grube, *Vancauri* being the locality given by Grube (1867) for his type-specimens. Presumably Vancauri is a printer's error for Nangkauri or Nancauri, an island in the Nicobar Group, where the Novara made extensive collections. This is held by Augener, for he changes Ehlers's specific name from *vancaurica* to *nancaurica*. I have adopted Augener's emendation.

Perinereis helleri, Grube.

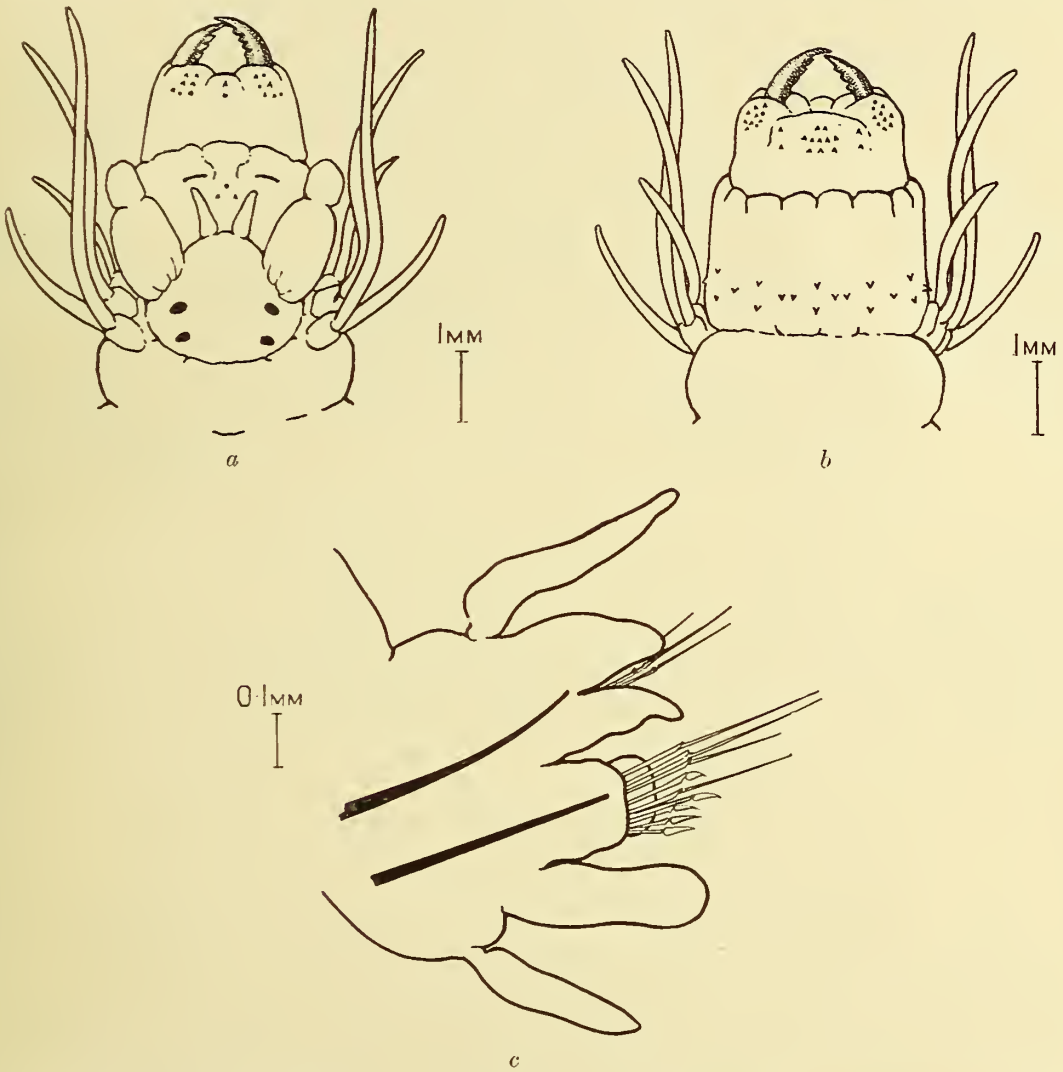
Grube, 1878, p. 81.
Horst, 1924, p. 172, pl. xxxiv, figs. 3, 4.

Occurrence.—Low Isles (2).

Remarks.—The larger specimen measures 66 mm. by 3 mm. without the feet. It has the proboscis (Text-fig. 8*a* and *b*) everted, and the arrangement of the paragnaths agrees in detail with Horst's account. Horst figures the foot.

Anteriorly the dorsal cirri (Text-fig. 8*c*) are longer than the dorsal lappet and posteriorly they are relatively longer still. The two dorsal lappets are larger relatively to the ventral ramus in the posterior region than they are in the anterior, but the upper dorsal lappet is not enlarged in the hinder region of the body in a manner comparable with that, for example, in *P. nigropunctata*. The distinctive features of this species are the separation of the paragnaths in Group III into three groups and the presence of long dorsal cirri. *P. camiguina* has a similar arrangement of paragnaths, but short dorsal cirri.

I have elsewhere (1926, p. 315) treated this species as a local variety of *P. cultrifera*, and Fauvel (1930, p. 528) regards it as a synonym of the latter species. I am now inclined to think that both *P. helleri* and *P. camiguina* are distinct species, distinguished from *P. cultrifera* by the separation of the paragnaths in Group III into three distinct groups.



TEXT-FIG. 8.—*Perinereis helleri*. *a*, head and proboscis from above ; *b*, head and proboscis from below ; *c*, middle foot.

P. helleri and *P. camiguina* are set apart by the great difference in the length of the dorsal cirri.

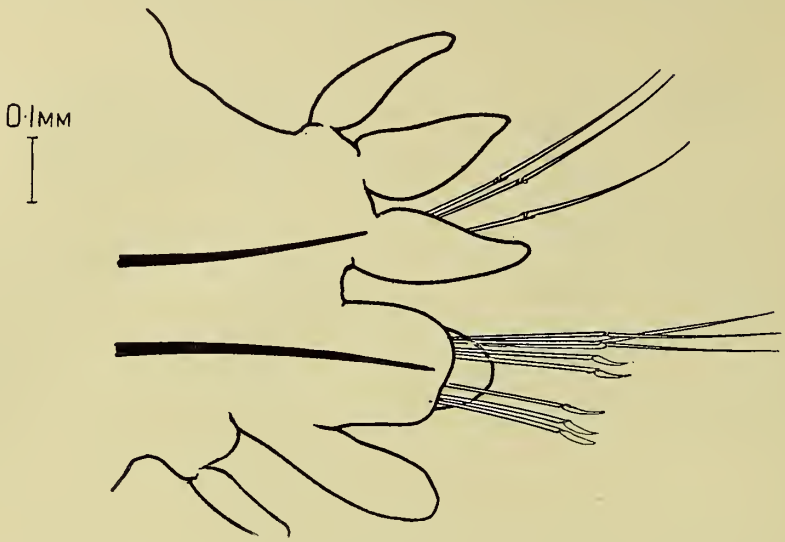
Perinereis camiguina, Grube.

Grube, 1878, p. 87, pl. iv, fig. 8.
Horst, 1924, p. 171, pl. xxxiii, fig. 7.

OCCURRENCE.—Low Isles ; " From rocks " (1).

REMARKS.—A single ill-preserved specimen measuring 46 mm. by 2 mm. without the feet. The proboscis is retracted. The arrangement of the paragnaths is similar to that in *P. helleri*. The dorsal cirrus (Text-fig. 9*a*) is slightly shorter than the dorsal lappet

and shows no relative increase in length in the hinder segments. There is no substantial enlargement of the upper dorsal lappet in the posterior region.



TEXT-FIG. 9.—*Perinereis camiguina*. Middle foot.

The *P. camiguina* of Augener (1922, p. 21) is described as having the dorsal cirri longer than the dorsal lappet and should therefore perhaps be referred to *P. helleri*. The present species seems to be distinguished from *P. helleri* only by the possession of much shorter dorsal cirri.

Perinereis nigropunctata, Horst.

Horst, 1924, p. 171.

Perinereis yorkensis, Augener, 1922, p. 24, text-fig. 6 *a–e*.

OCCURRENCE.—Low Isles ; Gen. survey ; 4.iv.29 ; F.9 (1).

REMARKS.—A single specimen measuring 21 mm. by 1 mm. without the feet. It has three rows of black spots as described by Horst. The proboscis is retracted, but as far as can be seen the arrangement of the paragnaths corresponds to Augener's figures. The lappets of the feet are less massive than as figured by Augener, but the general proportions are similar, and I find a similar enlargement of the dorsal lappet in the posterior region.

Perinereis obfuscata, Grube.

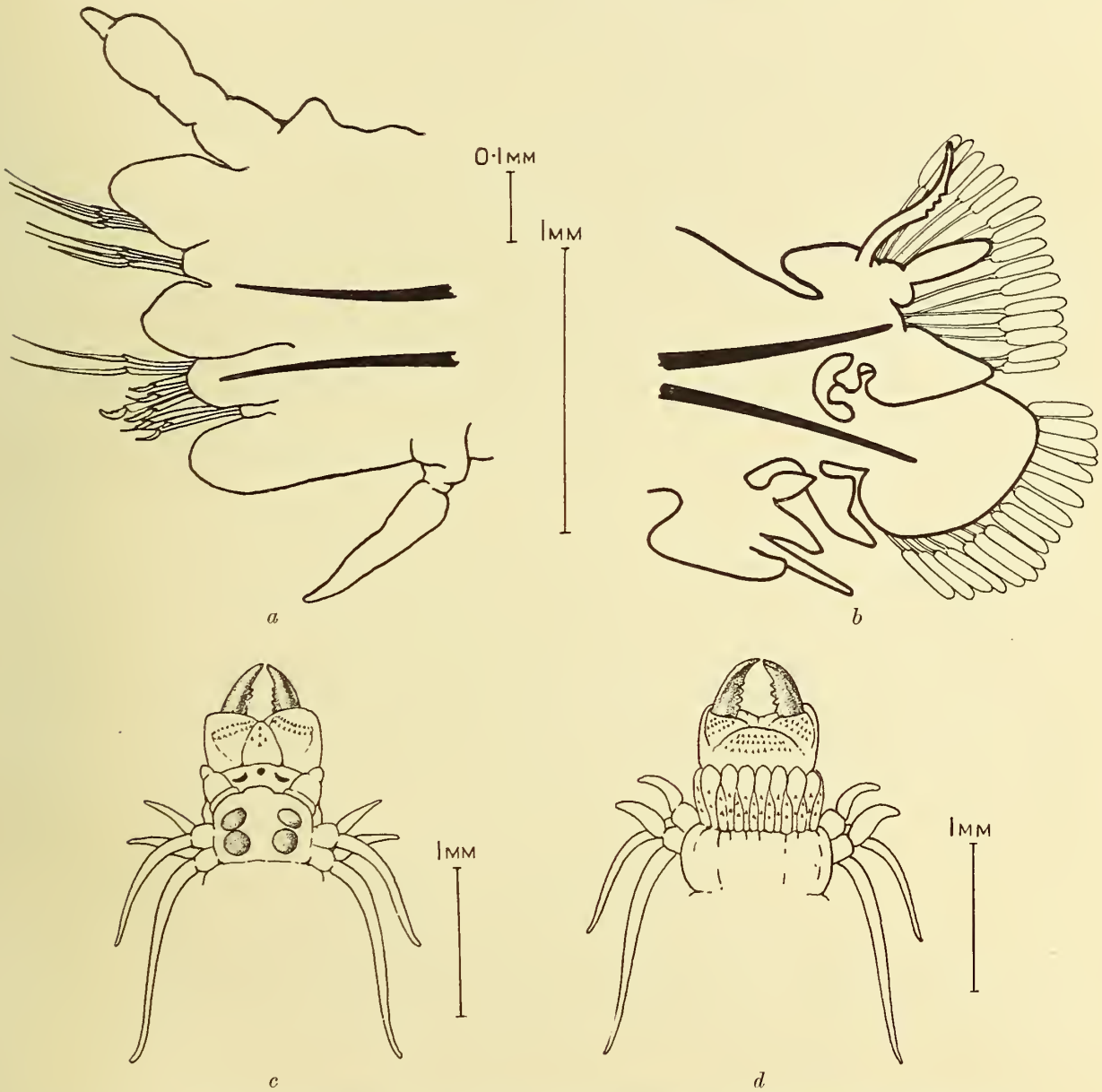
Horst, 1924, p. 173, pl. xxxiv, figs. 5, 6.

OCCURRENCE.—Low Isles ; " Worms collected round light " ; 8.ix.28 ; 2 epitocous males and 2 epitocous females, 3.x.28 ; " Worms caught in lagoon after dark, phosphorescent," one epitocous female. Gen. survey ; 1 atocous specimen.

REMARKS.—The atocous example is an anterior fragment, in which all the colouring is lost except some brown markings on the head. The proboscis is retracted, but as far

as can be seen the arrangement of the paragnaths is typical except that there are 6 paragnaths in Group I instead of the usual 5. The feet agree with Horst's figure.

The epitocous examples show interesting modifications. They measure between 12 and 15 mm. by 1 mm. without the feet. In the females the change to the epitocous



TEXT-FIG. 10.—*Perinereis obfuscata*. *a*, 5th foot of epitocous male ; *b*, modified foot of epitocous male ; *c*, head and proboscis of heteronereid from above ; *d*, head and proboscis of heteronereid from below.

condition begins at the 18th chaetiger, in the males at the 14th, in the females the thickening of the dorsal cirrus anteriorly extends over the first 5 chaetigers, in the males over the first 7 chaetigers, and in the males (Text-fig. 10*a*) it is more pronounced than in the females. Moreover, in the males only, the dorsal cirri of the sexually modified feet are crenellated on the under-surface (Text-fig. 10*b*).

One of the examples has the proboscis everted (Text-fig. 10*c* and *d*), and in this the paragnaths are arranged as follows :

I. A cruciform group of 5.
II. An oblique tristichous group of about 25.
III. A transverse group of about 25.
IV. An oblique mass of about 20.
V. One large paragnath.
VI. A single linear paragnath.
VII and VIII. A double row.

In the epitocous examples the eyes are greatly enlarged.

Fauvel (1930, p. 528) regards this species as a simple variety of *P. cultrifera*. They are indeed closely related, but that they are probably distinct is suggested by the fact that in the two species the modified heteronereid feet begin at different positions in the body. In *P. cultrifera*, in both male and female heteronereids, the epitocous feet begin from the 19th to 20th chaetigers. *P. striolata* Grube appears to differ only in the fact that the tentacular cirri reach to the 9th chaetiger, while Grube gives the 3rd chaetiger for the distance reached by the tentacular cirri of *P. obfuscata*.

In the present specimens, as in Horst's, the tentacular cirri reach to the 5th–6th chaetiger.

Platynereis polyscalma, Chamberlin.

Chamberlin, 1919, p. 219, pl. xxx, figs. 5–8 ; pl. xxxi, figs. 1–10 ; pl. xxxii, figs. 1–2.
Horst, 1924, p. 186.
Nereis (*Platynereis*) *integer*, Treadwell, 1920, p. 595, figs. 1–4.

Occurrence.—Low Isles ; " Worms collected round light, 8.ix.28 " (2).

Remarks.—Of these two specimens, one is an epitocous female measuring 23 mm. by 2 mm. without the feet and the other an epitocous male measuring 16 mm. by 1 mm. without the feet. The material does not allow me to add anything to the descriptions of this curious form by Gravier, Horst and Chamberlin.

Ceratonereis tentaculata, Kinberg.

Horst, 1924, p. 180, pl. xxxv, figs. 4–7, with synonymy.

Occurrence.—St. 12. " Magneta." 24.ii.29 ; Great Barrier Reef, Penguin Channel, 10–15½ fms., rock and shell gravel, mud on edges of pit (1).

Family Glyceridae.

Glycera gigantea, Quatrefages.

Fauvel, 1923, p. 387, fig. 152 *d–k*.

Occurrence.—Low Isles (1).

Remarks.—A single specimen without the proboscis. It is very long and slender, measuring 390 mm. by 3 mm. at its widest part without the feet. Owing to the absence of the proboscis I cannot determine this species with certainty, but the general facies, the feet with their two equal, bluntly pointed, anterior lips and the two short subequal

posterior lips and the vesicular retractile gill are indistinguishable from those of the European species. Augener (1927, p. 138) records this species from New Pomerania.

Goniada tripartita, n. sp.

Occurrence.—W. of Low Isles ; about 8 fms., mud ; (1).

Description.—A single fragment, incomplete posteriorly and measuring 38 mm. by 2 mm. including the feet for 118 chaetigers. For the first 80 chaetigers the body is cylindrical with a pad or cushion above every foot. Behind the 80th chaetiger the body is thicker, more flattened ventrally and dorsally arched. There is a conical prostomium with 10 rings and 4 small tentacles. The long proboscis is only partly everted, and dissection shows 2 large simple jaws with 3 teeth joined by a complete circle of about 24 X-shaped paragnaths alternately larger and smaller. There are at the base of the proboscis 8 chevrons on each side.

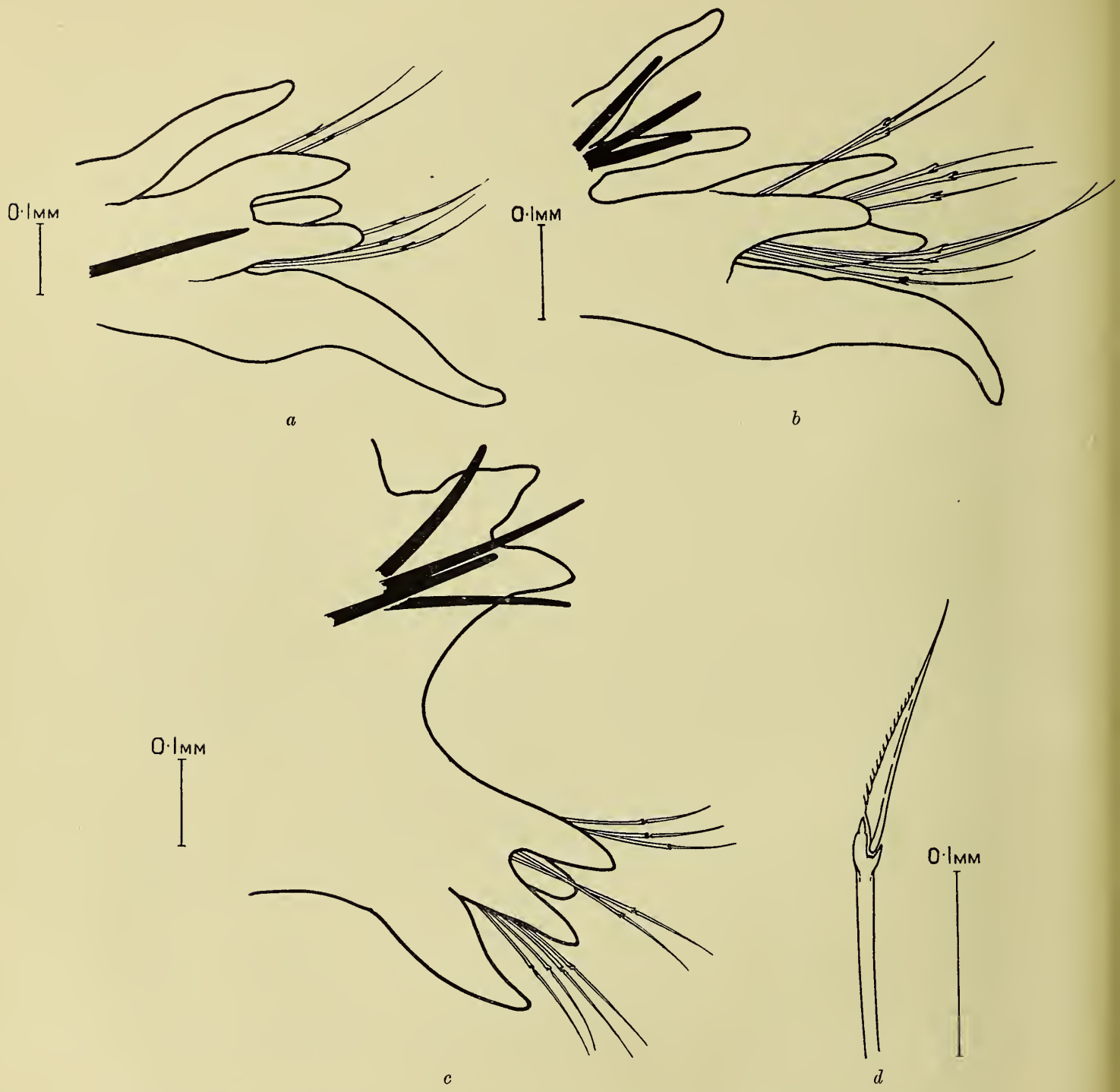
The first 51 segments have uniramous feet ; from the 52nd to the 80th the feet are biramous, but the two branches are not separated, and the final change involving the separation of the notopod from neuropod and the disappearance of the pads above the feet does not take place before the 80th chaetiger.

The first foot is much reduced. The anterior feet (Text-fig. 11*a*) consist of a dorsal cirrus, a chaetal lobe with 3 pointed lips, of which two are anterior and lie in front of the bristles and the third is shorter and lies behind the bristles, and a massive ventral cirrus. For about the first 5 chaetigers the ventral cirrus is about the same length as the prechaetal lips ; it rapidly increases in size, till by about the 20th chaetiger it is almost twice as long as the prechaetal lips and as broad as the chaetal lobe. The slender dorsal cirrus reaches to the end of the short post-chaetal lip. At the 52nd chaetiger a slender cirriform notopodial prechaetal process appears just below the dorsal cirrus, and with it an aciculum and 3 acicular chaetae, arranged fanwise (Text-fig. 11*b*). In the middle portion of the body, between the 52nd and 80th chaetigers, the ventral cirrus is relatively slightly shorter and the chaetal lips slightly longer than in the anterior region. In the middle region the dorsal cirrus becomes gradually thicker and more foliaceous from before backwards, as also to a much lesser extent does the notopodial prechaetal lip.

At the 81st chaetiger, where the posterior region begins (Text-fig. 11*c*), the dorsal cirrus and notopodial prechaetal lip become two small triangular lobes of about equal size, and in addition to the notopodial aciculum there are 3 acicular notopodial bristles. The neuropod has the pedal lips rather shorter and stouter than in the more anterior regions, and the ventral cirrus is more triangular and foliaceous ; it reaches as far as the ends of the prechaetal lips. The neuropod has throughout an aciculum and a fan-shaped bundle of compound bristles with an articulation similar to that in the bristles of *G. eremita* ; the blades are long, delicate and finely hirsute on one edge. The ventralmost chaeta (Text-fig. 11*d*) in every foot has a much shorter and more knife-shaped blade. This condition persists throughout the body.

Remarks.—*G. tripartita* belongs to that group of species which includes *G. emerita*, Audouin and M.-Edwards, *G. australiensis*, Quatrefages, *G. antipoda*, Augener, and *G. japonica*, Izuka ; these are all characterized by the presence of acicular chaetae in the notopod. The present species is distinguished by the possession of three regions of the body—an anterior uniramous region, a middle biramous region in which notopod and

neuropod remain unseparated, and a third, posterior region where the change in the shape of the body and the separation of the notopod from the neuropod occur. Fauvel has



TEXT-FIG. 11.—*Goniada tripartita*. *a*, anterior foot from in front; *b*, foot of middle region from behind; *c*, foot of posterior region from in front; *d*, ventralmost bristle of first foot.

established a subgenus *Goniadopsis* for a form with 3 regions of the body, but his species has the feet of the first two regions uniramous, and is without chevrons on the proboscis.

Family Eunicidae.

Subfamily *Eunicinae*, Kinberg.

Eunice antennata, Savigny.

Fauvel, 1917, p. 225, with synonymy.

Occurrence.—Batt Reef (1). Low Isles (2).

St. 10. "Magneta." 22.ii.29; across Satellite Reef, working on sides to S.W. and N.E., 14–17 fms.; coral, shell gravel and mud (4).

St. 12. "Magneta." 24.ii.29; Penguin Channel, 10–15½ fms.; rock and shell gravel, mud on edges of pit (7).

St. 16. "Magneta." 9.iii.29; about ½ mile W. of N. Direction Island; 20 fms.; stony (3).

St. 17. "Magneta." 9.iii.29; about ¼ mile N. of N. Direction Island, 19 fms.; sand, thick *Halimeda* (3).

St. 19. "Magneta." 10.iii.29; about ½ mile N. of Eagle Island, 10 fms.; shell gravel, thick *Halimeda* (4).

St. 21. "Magneta." 11.iii.29; ½ mile N.W. Howick Islands, 10 fms.; mud and shell, forams (1).

St. 25. "Magneta." 17.iii.29; in Papuan Pass, 20–25 fms.; *Foraminifera* and coral fragments (2).

Eunice grubei, Gravier.

Gravier, 1900, p. 258, pl. xiv, figs. 87, 88, Text-figs. 125–129.
Pruvot, 1930, p. 68, with synonymy.

Occurrence.—Low Isles (2); Jukes Reef (1).

Eunice aphroditois (Pallas).

Fauvel, 1917, p. 215, pl. vii, with synonymy.

Occurrence.—Low Isles (1).

Eunice afra, Peters.

Fauvel, 1919, p. 374, with synonymy.

Occurrence.—Batt Reef (1); Low Isles; "Embedded in *Symphyllia*" (1).

Marphysa mossambica, Peters.

Fauvel, 1917, p. 232, fig. 22, with synonymy.

Occurrence.—Low Isles; Gen. survey; 18.iv.29; Mangrove Park (3).

Lysidice collaris, Grube.

Augener, 1913, p. 286, with synonymy.

Occurrence.—Low Isles; "From rocks" (1); Gen. survey; Boulder tract (2).

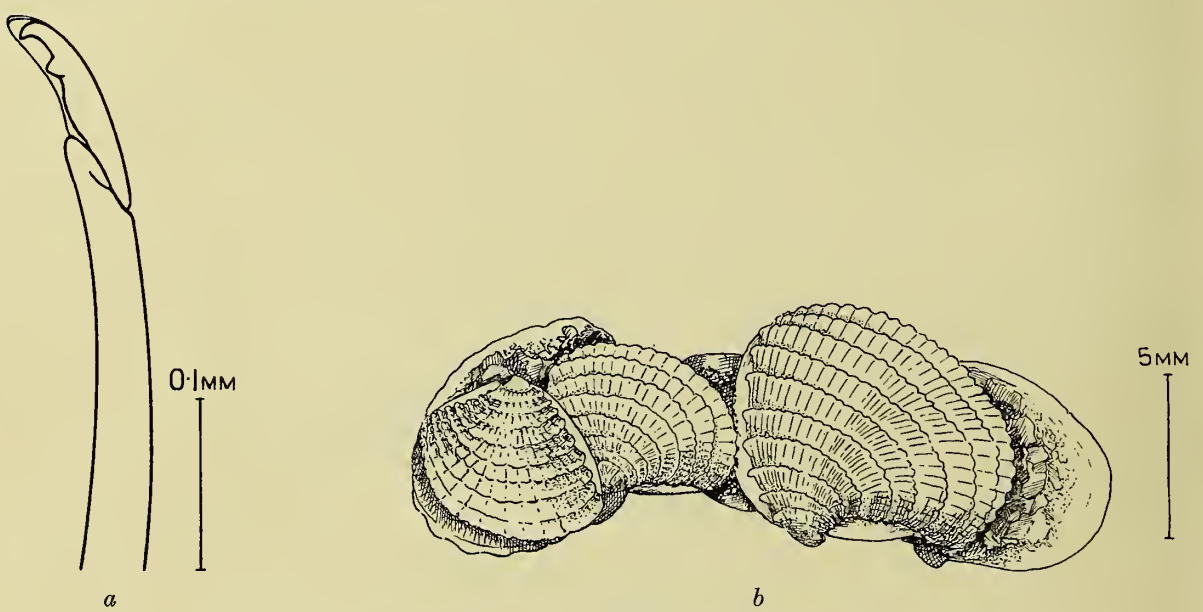
St. 10. "Magneta." 22.ii.29; across Satellite Reef, working on sides to S.W. and N.E., 14-17 fms.; bottom coral, shell gravel and mud. Dredge (1).

Subfamily *Onuphidinae.*

Onuphis, sp.

Occurrence.—Low Isles; Agassiz trawling off N. Anchorage; 9 fms.; low tide (1).

Description.—A single anterior fragment measuring 18 mm. by 2 mm. for 32 chaetigers. The head has a pair of eyes in front of the posterior lateral occipital tentacles. The ovoid palps and small frontal tentacles are of about the same length. Of the occipital tentacles the median is much the longest, reaching back to the 11th chaetiger; the anterior laterals are about a third of its length and the posterior laterals about two-thirds. The tentacular cirri reach to the bases of the palps.



Text-fig. 12.—*Onuphis*, sp. *a*, compound bristle from 1st foot; *b*, tube.

The first two chaetigers are longer than the rest and directed forwards, the ends of the first feet being on a level with the tips of the palps. They are not, however, markedly ventral in position as they appear to be in the genotype of Moore's *Paranorthia.*

The first feet consist of a slender dorsal cirrus, two rather elongated pedal lips, of which the posterior ends in a small cirriform process, and a stoutish ventral cirrus. The ventral cirrus becomes increasingly shorter and thicker from before backwards, until by the 6th foot it becomes a pad. The cirriform prolongation of the posterior lip of the foot also becomes gradually shorter, until by about the 16th foot it disappears. The gills begin as a small filament on the 9th chaetiger and remain unbranched throughout. At the 11th chaetiger the gill and the dorsal cirrus are of the same length; the gill rapidly increases in length, and the dorsal cirrus decreases so that at the 25th chaetiger the gill is about four times as long as the cirrus.

The first two chaetigers carry compound bidentate hooks (Text-fig. 12*a*); the normal bristles begin on the third chaetiger, and the 15th foot shows the usual bilimbate capillary bristles, comb bristles with the edges turned inwards as in *O. conchylega*, and a single bidentate acicular hook.

The animal was inhabiting a curious tube, consisting of a series of lamellibranch shells cemented together with their hinges at right angles to the long axis of the tube (Text-fig. 12*b*). The usual membranous cylinder forming the substructure of the tube seems to be absent.

Remarks.—I cannot attribute this example to any species with certainty. It is close both to the northern *O. conchylega* and to McIntosh's *O. macrobranchiata* from Japan. In *O. conchylega* the anterior crochets are different, and the gills do not normally begin before the 11th chaetiger.

The arrangement of the gills in *O. macrobranchiata* is the same as in the present specimen, but McIntosh figures the anterior bidentate crochets as simple. Chamberlin has described an *O. lepta* from off Panama with unbranched gills beginning on the 6th chaetiger and continued to the 53rd. He does not, however, describe the tubes of this species, which were presumably of the normal type.

Subfamily *Lumbrinereinae.*

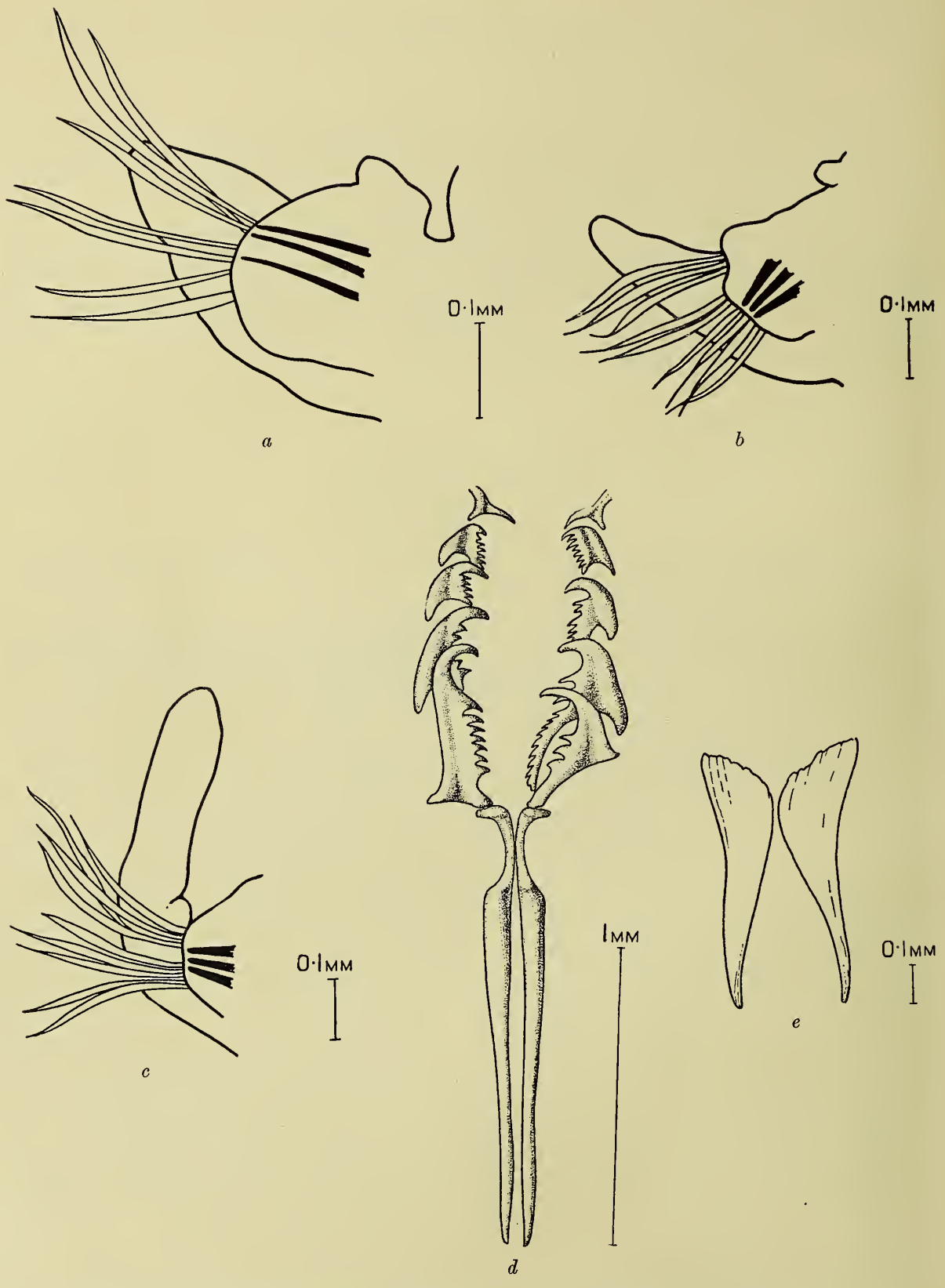
Arabella longipedata, n. sp.

Occurrence.—"Merinda." St. 2 and 3. 24.xi.28: Great Barrier Reef, Linden Bank, 28 fms.; bottom sand and shell (1).

Description.—A single example, incomplete posteriorly. It measures 72 mm. by 2 mm. for 230 chaetigers. The body is cylindrical, and somewhat flattened ventrally. There are no colour markings. The prostomium is conical and I can see no eyes. The first two segments are achaetous and about equal in length. The second segment is not involved with the mouth.

The feet are of the usual shape, with a broad rounded anterior lip and a conical cirriform posterior lip. The feet are to some extent sunken in the body-wall, and it is very difficult to discover a dorsal cirrus. In the anterior (Text-fig. 13*a*) and middle segments (Text-fig. 13*b*) there is a small rounded button at the point where the foot merges dorsally into the body-wall, and this I take to represent the dorsal cirrus. This button is indistinguishable in the posterior segments. The posterior lip of the foot shows a gradual increase in size from before backwards, and whereas in the anterior segments it is a small process shorter than the bristles, in the posterior segments (Text-fig. 13*c*) it is a large cirriform structure, directed upwards and considerably longer than the bristles. The bristles are all simple, bordered and geniculate; their appearance varies widely according to the angle at which they are seen, but I have not been able to discover the usual denticulated wing at the base of the bordering. The feet are supported by three or four tapering acicula. I have seen no dorsal bristles, and there are no hooded acicular chaetae.

The upper jaws (Text-fig. 13*d*) have a pair of long slender black carriers, behind which is a short accessory support: M.I and M.II are asymmetrical, the long M.I of the left side has the teeth continued almost up to the terminal hook; the short M.I of the right side has a rather larger diastema between the terminal hook and the teeth. The number of teeth is as follows: M.I, 8 + 4; M.II, 6 + 12; M.III, 5 + 7; M.IV, 8 + 8; M.V, 1 + 1. The lower jaws (Text-fig. 13*e*) are black and their shape is as shown in the figure.



TEXT-FIG. 13.—*Arabella longipedata.* *a*, anterior foot; *b*, middle foot; *c*, posterior foot; *d*, upper jaws; *e*, lower jaws.

Remarks.—I have established a new species for this specimen because I know no *Arabella* which shows a similar increase in length of the posterior lip of the foot. As far as the shape of the jaws goes, the present species is very like *A. novecrinita*, var. *asymmetrica*, Crossland (*v.* Crossland, 1924, fig. 104); but his species, equally with the *A. mutans* of Chamberlin, has hooded acicular bristles, absent from the present species. In the shape of its M.I it is intermediate between *A. iricolor* and its allies, with symmetrical pincers, and *A. geniculata*, in which the M.I have lost all resemblance to pincers and are toothed plates similar to M.II. *A. obscura* (Willey), from Ceylon (Willey, 1905, p. 285), has analogous upper jaw plates, but Willey's description was based on a small anterior fragment, and there is no reference to an increase in length posteriorly of the hinder lip of the foot. *A. moebiana* (Grube), from the Philippines, may possibly be identical with the present species, but Grube gives 4 teeth for M.V.

Family Spionidae.

Scolelepis indica, Fauvel.

Fauvel, 1928, p. 4, fig. 2, *g–m*.

Occurrence.—Low Isles; Gen. survey; 10.iv.29. The Sand Flat (1); and 20.iv.29 F.7 (2).

Remarks.—Three specimens broken into a number of fragments. I have compared them with a co-type of Fauvel's species. Fauvel (*loc. cit.*) writes that the gill begins on the 2nd chaetiger. Actually the gill begins on the 1st chaetiger. Fauvel (*in litt.*) reports that the statement that the gill begins on the 2nd chaetiger is a printer's error, which he proposes to rectify in a subsequent publication.

Family Chaetopteridae.

Mesochaetopterus minuta, Potts.

Potts, 1914, p. 963, pls. ii and iii, figs. 7, 8.

Occurrence.—Low Isles; Gen. survey; 20.iv.29. The Sand Flat, 2 specimens and a number of tubes.

Remarks.—A cluster of horny tubes incrusted with sand-grains. The tubes may have a length of 20 cm., and the diameter is about 2 mm. Nearly all are empty, but I succeeded in extracting two macerated and incomplete specimens. The largest measures 52 mm. by 2 mm. at its widest part for about 36 chaetigers. As far as their condition permits examination, they seem to resemble Potts's description and figures, and in spite of the fact that they are twice as large as any examples recorded by Potts, I believe them to belong to Potts's species. The condition of the present specimens does not permit me to add anything to Potts's account. Potts mentions the occurrence of his species in the Torres Straits.

Family Opheliidae.

Armandia lanceolata, Willey.

Willey, 1905, p. 228, pl. v, fig. 120.
Fauvel, 1919, p. 435, with synonymy.

Occurrence.—Low Isles (1).

Remarks.—A single ill-preserved specimen. The anal funnel is destroyed. There are 29 chaetigers, gills from the 2nd to the 26th chaetigers, 3 cephalic eyes, and lateral eyes from the 7th to the 17th chaetigers.

Family Capitellidae.

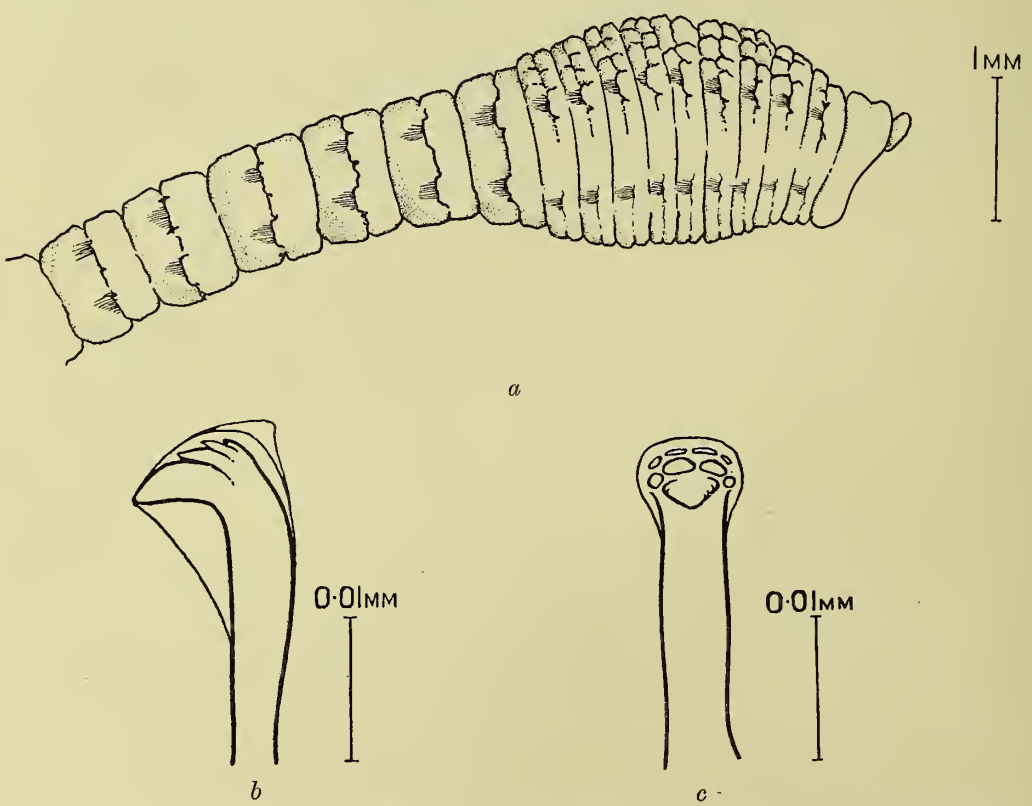
Genus *Dasybranchethus*, gen. nov.

Generic Diagnosis.—Capitellids with 16 thoracic segments, of which 15 are chaetigers. The thorax carries capillary bristles only, and the abdomen only hooks. No gills were seen.

Dasybranchethus fauveli, n. sp.

Occurrence.—Low Isles (1).

Description.—The specimen measures 90 mm. by 2 mm. at the widest part and 1 mm. at the narrowest; the length of the thorax is 6 mm. The body is cylindrical and contracted anteriorly, so that its thickest part is at about the 5th chaetiger.



Text-fig. 14.—*Dasybranchethus fauveli*. *a*, thorax seen from the side; *b*, hook in profile; *c*, hook, seen from in front.

The prostomium is tongue-shaped, and I see no eyes. It is retracted within the buccal segment so that only its tip can be seen. The buccal segment is slightly longer than the following segment, and appears to be considerably longer dorsally than it is ventrally. On the dorsal surface it is faintly divided into three incomplete rings, which disappear at the sides of the body. The remaining thoracic segments are biannulate (Text-fig. 14*a*). The first 9 chaetigers are of about the same length; the 10th and remaining thoracic chaetigers are twice as long as the preceding thoracic chaetigers. The first 9 chaetigers have a rather irregular mosaic appearance on the dorsal surface, which disappears at the sides and on the ventral surface. The transition from thorax to abdomen is not sharply marked. There are 15 thoracic chaetigers, each with a pair of dorsal and a pair of ventral bristle-bundles, coming out of shallow pits and composed of simple capillary bristles.

The abdominal chaetigers are very numerous. Unfortunately the state of preservation is not good, the integument is spongy, and neither branchiae nor the limits of the segments can be discovered. There are hooks only in the abdomen, and they have 3 rows of teeth above the main fang (Text-fig. 14*b* and *c*).

There is no copulatory apparatus and, as far as I can tell, no anal appendage. The anus appears to be terminal.

Remarks.—The number of thoracic segments with only capillary bristles is so distinctive that in spite of the poverty of the material I felt justified in establishing a new genus for this specimen. It belongs to the group of Capitellids that are without copulatory apparatus, with only capillary bristles in the thorax and only hooks in the abdomen, and probably without gills.

Genus *Dasybranchus*, Grube.

Dasybranchus, sp.

Occurrence.—Low Isles; Gen. survey; 10.iv.29; F.7 (1).

Remarks.—This example consists of the thorax and one damaged abdominal segment of a *Dasybranchus*. It is probably a fragment of *Dasybranchus caducus*, Grube.

Family Amphictenidae.

Pectinaria (*Pectinaria*) *brevispinis*, Grube.

Grube, 1878, p. 210, pl. xi, fig. 2.
Nilsson, 1928, p. 64, fig. 20, a–g.

Occurrence.—Low Isles (1); Gen. survey; Mangrove Park (1).

Remarks.—I have little doubt that the specimen in the Berlin Museum, redescribed by Nilsson, is in fact, as he assumes, the type of Grube's species. The present examples, which have the characteristic small first pair of tentacular cirri, agree fairly closely with Nilsson's account. There are, however, a few minor differences.

In the larger and better preserved of the two examples the paleae, of which there are two groups of 13, occupy more of the large cephalic plate, and the buccal tentacles

are much longer and more numerous than in Nilsson's account. Grube's type measured 90 mm. by 17 mm. over the segment bearing the paleae, the present specimen measures only 55 mm. by 14 mm.

As far as the 2nd chaetiger there are thick, fleshy, glandular folds running across the ventral surface. These are interrupted in the mid-ventral line by a cushion in the last branchiferous and the first chaetigerous segments. In the 2nd chaetiger this cushion is bilobed. Behind the 2nd chaetiger the glandular pads lie just below the feet and are widely separated. There are 9 anal hooks on each side.

Of the tubes, that belonging to the larger of the two specimens was preserved dry and has begun to crumble away. It measures about 90 mm. in length by 18 mm. in diameter at its widest part and 10 mm. at its narrow end. That belonging to the smaller of the two examples is not so large and is rather more curved. It measures 80 mm. in length by 14 mm. in diameter at its widest part and 7 mm. at its narrow end. Except that the present tubes are a little more curved, Nilsson's photograph (fig. 21*a*) of the tube of Grube's type closely resembles these from the Great Barrier Reef.

Pectinaria (*Pectinaria*) *antipoda*, Schmarda.

Nilsson, 1928, p. 69, figs. 22 and 23, with synonymy.
Pruvot, 1930, p. 78.

Occurrence.—Low Isles (1).

Remarks.—I rather doubtfully assign this example to Schmarda's species. It measures 35 mm. by 7 mm. It agrees in the main with Nilsson's account. There are 17 bristle-bearing and 13 hook-bearing segments. The posterior lateral appendages of the cephalic membrane are longer than the anterior.

The ventral glandular pad of the 2nd chaetiger is not in the present specimen divided into a series of lobes, but forms a wrinkled band across the segment, continuous except for a break in the mid-ventral line.

The scaphe resembles Nilsson's figure except that it is not so sharply constricted off from the last abdominal segment, and the length is rather greater relative to the breadth. The arrangement of the lappets and of the anal cirrus is, however, similar. The bristles and hooks agree with Nilsson's account.

The tube measures 62 mm. by 11 mm. at the wider end and 4 mm. at the narrower end. It is slightly curved and built of large sand grains, black, grey and white in colour. The surface is rougher than that of the tube of *P. brevispinis*. I see no shell fragments in its composition.

Family Terebellidae.

Loimia medusa (Savigny).

Fauvel, 1902, p. 94, text-figs. 43–45.
Hessle, 1917, p. 170, for synonymy.

Occurrence.—Low Isles (1); about 8 fms., mud, off West of Low Isles (1).

Remarks.—Of these two specimens one is large, measuring 90 mm. by about 10 mm. at its widest part for 40 chaetigers, and the other measures only 22 mm. for 65 chaetigers.

The small specimen is a more or less uniform pale brown in colour. In both the tentacles are lost. The larger specimen is pale yellow, generously mottled with black. In the anterior region there are black bands running parallel with the tori along the sides of the body and meeting in the mid-ventral line. Behind the last ventral scute these black bands become rapidly fainter and are soon indistinguishable from the general black mottling.

These specimens seem to be typical examples of the species. The exact posterior limit of the scutes is difficult to determine, but they seem to end at the 9th chaetiger. The larger specimen is accompanied by its tube, which is composed of shell fragments and pebbles.

In the present collection are three further examples of *Loimia*, which I have with hesitation treated as specifically distinct from the present specimens and attributed to *L. montagui*.

Loimia montagui (Grube).

Willey, 1905, p. 303, pl. vi, figs. 160–163, with synonymy.

Occurrence.—St. 9. "Magneta." 22.ii.29; Penguin Channel, 12–14 fms., in clean pit and on mud at sides (1).

St. 14. "Magneta." 7.iii.29; ½ mile S.E. Lizard Island, 19 fms., shell, gravel, rich *Halimeda* (1).

St. 23. "Magneta." 12.iii.29; in lee of Turtle Isles, 8 fms., mud and shell (1).

Remarks.—Of these three specimens, with an average measurement of 30 mm. by 4 mm. for 27 chaetigers, one is buff-coloured, one grey, and the third cream-coloured. In the last the black markings, so conspicuous in the other two, are so much faded as to be almost invisible. In the buff and in the grey specimens the black lateral stripes running parallel with the tori persist to about the 17th chaetiger; the continuation of these stripes across the ventral surface is only apparent for about the first six chaetigers, and is never so marked as in the larger example of *L. medusa* already described. Moreover, in every segment there is a very conspicuous black band across the back.

The teeth of the hooks are more numerous in these specimens than in *L. medusa*. In the thorax the hooks have usually six teeth, five large and one small. In the abdominal tori the number is six with a rudimentary seventh.

In two of the specimens the scutes appear to be continued to the 10th chaetiger, and in the third to the 9th. The numbering of the scutes in the Terebellids is apt to be misleading; except in unusually well-preserved specimens it is very difficult to decide exactly where they end; and the large shield behind the buccal segment, in which the scutes of several segments are usually fused, may be counted as a single scute; or when it is transversely wrinkled it may be counted as two or more scutes.

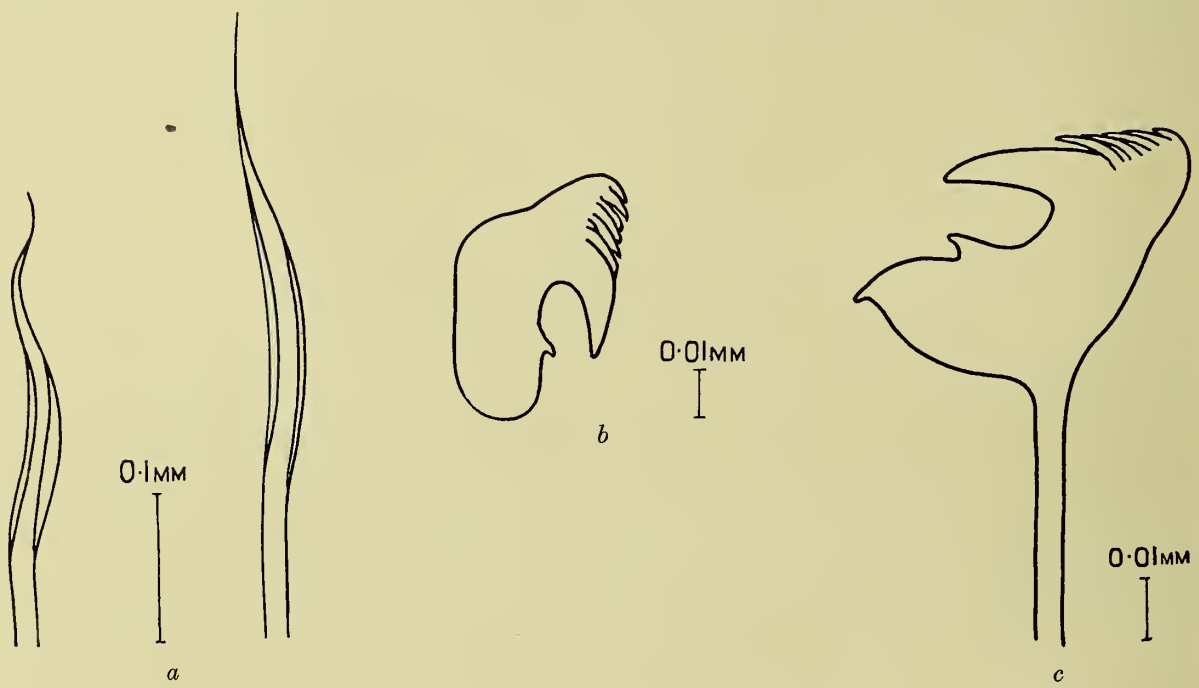
According to Willey, this species makes tubes of fine mud, very different from that of *L. medusa*. Otherwise the distinction between it and *L. medusa* is slender. *Loimia* is in need of revision, and this would necessitate an examination of Grube's type-specimens. Hessle (1917, p. 170) regards *L. annulifilis* as a synonym of *L. medusa*; Augener (1927, p. 142) treats it as a distinct species. The latter author (1926, p. 466) also thinks that *L. montagui* is probably a synonym of *L. medusa*.

Pista typha (Grube).

Terebella (*Pista*) *typha*, Grube, 1878, p. 232, pl. xii, fig. 4.
Pista typha, Hessle, 1917, p. 155.
Pista typha, Augener, 1927, p. 143.

Occurrence.—Low Isles ; from gut of an Enteropneust, probably *Balanoglossus carnosus* (1).

Remarks.—The specimen has lost all its colour and measures 65 mm. by 2 mm. across the thorax. The thorax and the caudal end project from a parchmenty tube



Text-fig. 15.—*Pista typha*. *a*, bristles ; *b*, posterior thoracic hook ; *c*, hook from 1st torus.

incrusted with sand grains. The example is partly digested and the details of the anterior segments cannot be studied. The tentacles are fairly numerous, but rather short and slender. The gills are mop-like, and indistinguishable from those of *P. cristata*. The left-hand member of the anterior pair is missing, and of the posterior pair the right hand member is considerably larger than both the remaining gills, the left-hand member of the posterior pair being about equal in size to the right-hand member of the anterior pair.

There are 17 pairs of notopodia ; the bristles (Text-fig. 15*a*) are widely bordered and very like those of *P. cristata*. They end in a simple tip ; some are much shorter than the rest and have a sickle-shaped appearance.

In the anterior thoracic segments the hooks are in simple rows ; in the middle and posterior thoracic segments they are in single alternating rows. I could not ascertain the segment at which the change takes place. The uncini (Text-fig. 15*b*) appear to have

five or six teeth and several rows of denticles above the main fang. Hessle gives eight teeth above the main fang. The hooks of the first two or three tori have a posterior prolongation (Text-fig. 15*c*). In the abdominal region the tori are transformed into projecting pinnules. There are about 15 ventral gland-shields.

I have doubtfully attributed this very imperfect specimen to Grube's species. It agrees in the main with Grube's account. Grube gives 13 ventral scutes ; in the present specimen they cannot be counted accurately, but they appear to be about 15 in number. Grube describes the dorsal bristles as " haud limbatae " ; this is probably an oversight. Hessle describes the bristles of the examples attributed by him to Grube's species as widely bordered, as they are in the present specimen. Finally I find this species difficult to separate from the widely distributed *P. cristata*.

Family Serpulidae.

Spirobranchus giganteus (Pallas).

Spirobranchus giganteus, Ehlers, 1887, p. 286, pl. lvii, figs. 1–7.
Spirobranchus giganteus, Pruvot, 1930, p. 88 for synonymy.
Spirobranchus semperi, Mörch, Augener, 1914, p. 148 also for synonymy.

Occurrence.—Low Isles ; Gen. survey ; 21.iv.29 ; " The Thalamita flat." (1). Jukes's Reef, Outer Barrier (4).

Remarks.—These are typical examples of this common tropical species. The specimen from the Thalamita flat is rather more massive than those from the Outer Barrier, measuring 51 mm. from tail to gill-base by 5 mm. as compared with about 30 mm. by 3 mm., the average measurement of the Outer Barrier examples. Moreover the gills of the former specimen are of an intense blue colour, whereas those of the latter specimens are blue at their bases and pale pink further forward. The colour is, however, largely dependent upon the manner of preservation.

There is considerable variation in the breadth of the wings of the opercular peduncle, and no two specimens show exactly similar opercular horns. In some there are only a pair of branching, laterally directed horns, and in others there is a third and smaller horn pointing forwards and upwards (var. *tricornis* Mörch). I have examined the type of Baird's *Cymospira brachycerca*, and can add it to the synonymy of the present species.

Salmacina dysteri (Huxley).

Fauvel, 1927, p. 377, fig. 129*e–k*.
Augener, 1914, p. 160.

Occurrence.—Maer Island, Torres Strait, N.W. Reef Flat, outer edge. Numerous specimens.

Remarks.—A cluster of tubes indistinguishable from similar clusters found in the English Channel. It is difficult to remove a specimen intact, but such fragments as I have examined show nothing to distinguish them from the European species. According to Augener, the Australian *S. australis* Haswell is a synonym of this species.

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OLIGOCHÆTA.

Pontodrilus bermudensis, Beddard.

v. F. E. Beddard, 'A Monograph of the Oligochaeta.' 1895, p. 469; also W. Michaelsen, "Oligochäten von verschiedenen gebieten," 'Mitt. naturh. Mus. Hamburg,' 1910, xxvii, p. 84.

Occurrence.—Low Isles; Gen. survey; 5.iv.29; "IM.4 and IM.5" (2); and 6.iv.29, Earthworm Spit (7).

Remarks.—I am indebted to my colleague, Col. J. Stephenson, F.R.S., for the determination of these specimens.

ECHIUROIDEA.

Of the two Echiuroids in the collection, one is in bad condition, and the other is an example of the curious form *Pseudobonellia*, already described from the Great Barrier Reef by Johnston and Tiegs. It has paired uteri and a male tube.

Pseudobonellia biuterina, Johnston and Tiegs.

v. T. H. Johnston and O. W. Tiegs, "*Pseudobonellia*, a New Echiuroid Genus from the Great Barrier Reef," 'Proc. Linn. Soc. New South Wales,' xliv, 1919, pp. 213–230, pls. ix–xi.

Occurrence.—Low Isles (1).

? *Thalassema vegrande*, Lampert.

v. A. E. Shipley, "On a Collection of Echiuroids from the Loyalty Islands, New Britain and China Straits," 'Willey's Zool. Results,' Pt. III, 1899, p. 352.

Occurrence.—Low Isles (1).

Remarks.—The condition of this specimen renders the examination of its internal anatomy impracticable. It bears a strong external resemblance to some examples from Rotuma attributed by Shipley to this species.

SIPUNCULOIDEA.

The Sipunculoids in this collection all belong to well-established tropical species, which have been studied by a number of authors, and I have nothing to add to the existing accounts. The majority were obtained from burrows in dead coral rock. For a discussion of the boring habits of Sipunculoids see Sluiter, 'Natuurk. Tijdschrift voor Nederl. Indie,' vol. l, 1891, p. 103.

Sipunculus robustus, Keferstein.

Selenka, 1883, p. 97, pl. xii, fig. 170.

Occurrence.—Low Isles (1).

Sipunculus, sp. juv.

Occurrence.—St. 5. "Merinda." 24.xi.28. Linden Bank, 37 fms.; bottom mud (1).

Siphonosoma cumanense (Keferstein).

Spengel, 1912, p. 261.
Sipunculus cumanensis, Selenka, 1883, p. 104, pl. xii, figs. 172–173.

Occurrence.—Low Isles; Gen. survey; 10.iv.29; F.7 (2).

Aspidosiphon klunzingeri, Selenka and Bülow.

Selenka, 1883, p. 115, pl. xiii, figs. 187–189.
Shipley, 1899, p. 153.

Occurrence.—Low Isles; Gen. survey; 4.iv.29; F.6 (4).—20.iv.29. The Sand Flat (1). Low Isles (1).

Aspidosiphon cumingii, Baird.

Selenka, 1883 p. 113, pl. xiii, figs. 183–186.

Occurrence.—Low Isles; Gen. survey; 20.iv.29. The Sand Flat (1). Low Isles (1).

Aspidosiphon steenstrupii, Diesing.

Selenka, 1883, p. 116, pl. i, figs. 12–13; pl. xiii, figs. 190–192.
Sluiter, 1902, p. 18.

Occurrence.—Low Isles (2). Coral rock, Low Isles (1).

Cloeosiphon aspergillum (Quatrefages).

Selenka, 1883, p. 126, pl. ii, figs. 23, 24; pl. xiv, figs. 214–216.
Sluiter, 1902, p. 30.

Occurrence.—Low Isles; Gen. survey; 21.iii.29. Tripneustes Spit (1). Boulder Tract (3). Low Isles (18).

Physcosoma nigrescens (Keferstein).

Phymosoma nigrescens, Selenka, 1883, p. 72.
Physcosoma nigrescens, Fischer, 1927, p. 210.

Occurrence.—Low Isles; Gen. survey; 21.iii.29. Tripneustes Spit (1). 22.iii.29. R.D. and R.16 (3).—11.iv.29, between Anchorage Reefs and Tripneustes Spit (1).—20.iv.29, The Sand Flat (1). Snapper Island (1). Low Isles (16).

Physcosoma pacificum (Keferstein).

Phymosoma pacificum, Selenka, 1883, p. 63, pl. i, fig. 6 ; pl. vii, figs. 111, 112.

Occurrence.—Low Isles (1).

Physcosoma scolops (Selenka and de Man).

Phymosoma scolops, Selenka, 1883, p. 75, pl. ii, fig. 17 ; pl. x, figs. 138–144.
Physcosoma scolops, Sluiter, 1902, p. 12.

Occurrence.—Three Isles ; 7.v.29, Beach rock (1). Low Isles, coral rock (1). Low Isles (10).

Physcosoma dentigerum (Selenka and de Man).

Phymosoma dentigerum, Selenka, 1883, p. 67, pl. i, fig. 7 ; pl. ix, figs. 118–123.
Physcosoma dentigerum, Sluiter, 1902, p. 11.

Occurrence.—Low Isles ; Gen. survey ; Boulder Tract (1). Low Isles (5).

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